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**From:** Washington, John [Washington.John@epa.gov]  
**Sent:** 6/29/2021 9:22:57 PM  
**To:** Lindstrom, Andrew [Lindstrom.Andrew@epa.gov]; Zhanyun.wang [zhanyun.wang@ifu.baug.ethz.ch]  
**CC:** Strynar, Mark [Strynar.Mark@epa.gov]  
**Subject:** RE: Follow-up on PFAS GHGRP Meeting

Hey guys,

I think us authors can talk about it when we get some reaction from Science editors or reviewers. It looks as though it defines a subset of the OECD definition, doesn't it? I think any compound by this PFAS definition also would be PFAS by OECD definition . . . let me know if I am missing something.

Thanks,  
John

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**From:** Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>  
**Sent:** Tuesday, June 29, 2021 2:01 PM  
**To:** Zhanyun.wang <zhanyun.wang@ifu.baug.ethz.ch>  
**Cc:** Washington, John <Washington.John@epa.gov>; Strynar, Mark <Strynar.Mark@epa.gov>  
**Subject:** RE: Follow-up on PFAS GHGRP Meeting

Zhanyun,

Thank you very much.

With such a specific (and odd to me) definition, it seems to be strategically limiting where further inquiries will be made.

Exclusion of CF<sub>3</sub> compounds and PVDF is a big loophole.

Thank you!

Andy

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**From:** Wang Zhanyun (IfU, ESD) <zhanyun.wang@ifu.baug.ethz.ch>  
**Sent:** Tuesday, June 29, 2021 1:52 PM  
**To:** Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>  
**Cc:** Washington, John <Washington.John@epa.gov>; Strynar, Mark <Strynar.Mark@epa.gov>  
**Subject:** Re: Follow-up on PFAS GHGRP Meeting

Dear Andy,

The new proposed definition of PFAS for TSCA will let go many F-gases, pesticides, pharmaceuticals and dyes that contain only one -CF<sub>3</sub> group and PVDF (second largest used fluoropolymers). Notably, DuPont tested fluorotelomers that have structures such as F(CF<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>-CH<sub>2</sub>-CH<sub>2</sub>-R instead of F(CF<sub>2</sub>CF<sub>2</sub>)<sub>n</sub>-CH<sub>2</sub>-CH<sub>2</sub>-R before. And such new compounds won't fall under the new definition as well (but I don't know if Chemours have plans to produce them). Similarly, compounds with the structure F(CF<sub>2</sub>-O)<sub>n</sub>-R will not fall under this new definition.

It' ll not cause problem internationally, as the OECD definition does allow users to set their user-specific working scope, but of course it' ll set some precedents for some people/organisations.

This definition may comes from Antony Williams' s group (at least I first heard about it from them a while ago).

Best regards,  
Zhanyun

On 29 Jun 2021, at 19:36, Lindstrom, Andrew <[Lindstrom.Andrew@epa.gov](mailto:Lindstrom.Andrew@epa.gov)> wrote:

Zhanyun,

Do you have any comments or reaction to the new proposed definition of PFAS for TSCA?

I'm interested to hear if you think this will help or cause problems internationally?

Specifically, why would they choose this definition:

"...includes per- and polyfluorinated substances that structurally contain the unit  $R-(CF_2)-C(F)(R')R''$ . Both the  $CF_2$  and  $CF$  moieties are saturated carbons and none of the  $R$  groups ( $R$ ,  $R'$  or  $R''$ ) can be hydrogen."

John, maybe we should reference this in the *Science* article.

Thank you very much,

Andy

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**From:** Spalt, Nicholas <[Spalt.Nicholas@epa.gov](mailto:Spalt.Nicholas@epa.gov)>

**Sent:** Monday, June 28, 2021 4:04 PM

**To:** Ottinger, Deborah <[Ottinger.Deborah@epa.gov](mailto:Ottinger.Deborah@epa.gov)>; Barrette, Michael <[Barrette.Michael@epa.gov](mailto:Barrette.Michael@epa.gov)>; D'Ambro, Emma <[dambro.emma@epa.gov](mailto:dambro.emma@epa.gov)>; Lewis, Candace <[Lewis.Candace@epa.gov](mailto:Lewis.Candace@epa.gov)>; Lindstrom, Andrew <[Lindstrom.Andrew@epa.gov](mailto:Lindstrom.Andrew@epa.gov)>; Merrill, Raymond <[Merrill.Raymond@epa.gov](mailto:Merrill.Raymond@epa.gov)>; Miller, Melinda <[miller.melinda@epa.gov](mailto:miller.melinda@epa.gov)>; Murphy, Benjamin <[Murphy.Benjamin@epa.gov](mailto:Murphy.Benjamin@epa.gov)>; Sheppard, Margaret <[Sheppard.Margaret@epa.gov](mailto:Sheppard.Margaret@epa.gov)>; Williams, Antony <[Williams.Antony@epa.gov](mailto:Williams.Antony@epa.gov)>

**Cc:** Ryan, Jeff <[Ryan.Jeff@epa.gov](mailto:Ryan.Jeff@epa.gov)>; Offenberg, John <[Offenberg.John@epa.gov](mailto:Offenberg.John@epa.gov)>; Linak, Bill <[Linak.Bill@epa.gov](mailto:Linak.Bill@epa.gov)>; Lee, Chun-Wai <[Lee.Chun-Wai@epa.gov](mailto:Lee.Chun-Wai@epa.gov)>; Bogle, Stephanie <[bogle.stephanie@epa.gov](mailto:bogle.stephanie@epa.gov)>; Banks, Julius <[Banks.Julius@epa.gov](mailto:Banks.Julius@epa.gov)>

**Subject:** RE: Follow-up on PFAS GHGRP Meeting

No problem Debbie, and yes that attachment and write-up is very helpful. For the dashboard - I can follow-up with you separately about a proposal for loading data while this new workgroup deliberates.

All,

Apologies for cross postings but TSCA has submitted a PFAS definition in their proposed rule for 40 CFR 705.3 (see below). Certainly a good jumping point for the workgroup. Do we have a list for these 1,364 compounds? Tony would you feel comfortable leading the meeting for those who have affirmed involvement (and other necessary attendees) for this new discussion? I feel that it is best to have someone with the chemistry background to lead this charge. Here is the list of affirmed names:

Tony Williams  
John Offenberg  
Nicholas Spalt  
Ben Murphy  
Emma D'Ambro  
Ray Merrill (Keep me in the loop)  
Debbie Ottinger  
Margaret Shappard (Checking with Supervisor)

TSCA Proposed Rule (Listed POC in e-mail chain Becky Cuthbertson):

Today there was a proposed rule published in the Federal Register for reporting on manufacturing and use of certain PFAS under TSCA authority. The preamble description of what falls into the definition of PFAS at 86 FR 33929 describes it as:

***Reportable chemicals substances.***

Under TSCA section 8(a)(7), EPA must collect information on chemical substances that are “perfluoroalkyl or polyfluoroalkyl” substances or PFAS. EPA has determined that any PFAS that fall within the structural definition, described below, are the PFAS referred to in TSCA section 8(a)(7). For this proposed rule, EPA has identified at least 1,364 chemical substances and mixtures that are PFAS and would potentially be subject to reporting under the final rule, if they have been manufactured in any year since January 1, 2011. For the purposes of this proposed action, the structural definition of PFAS includes per- and polyfluorinated substances that structurally contain the unit R-(CF<sub>2</sub>)-C(F)(R')R”. Both the CF<sub>2</sub> and CF moieties are saturated carbons and none of the R groups (R, R' or R”) can be hydrogen. It should be noted that this structural definition of PFAS is a working definition which has been used by EPA’s Office of Pollution Prevention and Toxics when identifying PFAS on the TSCA Inventory. This definition may not be identical to other definitions of PFAS used within EPA and/or other organizations. To assist potential reporters with determining whether certain substances may be covered under this structural definition, EPA has identified specific PFAS covered by this proposed rule. These will be included as non-exhaustive examples in the rule where it is possible to do so without divulging information claimed as CBI.....

the proposed rule text for 40 CFR 705.3 reads:

***Per- and polyfluoroalkyl substances or PFAS, for the purpose of this part, means any chemical substance or mixture that structurally contains the unit R-(CF<sub>2</sub>)-C(F)(R')R”. Both the CF<sub>2</sub> and CF moieties are saturated carbons. None of the R groups (R, R' or R”) can be hydrogen.***

Full proposal is attached.

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**From:** Ottinger, Deborah <Ottinger.Deborah@epa.gov>

**Sent:** Thursday, June 24, 2021 4:48 PM

**To:** Spalt, Nicholas <Spalt.Nicholas@epa.gov>; Barrette, Michael <Barrette.Michael@epa.gov>; D'Ambro, Emma <dambro.emma@epa.gov>; Lewis, Candace <Lewis.Candace@epa.gov>; Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>; Merrill, Raymond <Merrill.Raymond@epa.gov>; Miller, Melinda <millier.melinda@epa.gov>; Murphy, Benjamin <Murphy.Benjamin@epa.gov>; Sheppard, Margaret <Sheppard.Margaret@epa.gov>; Williams, Antony <Williams.Antony@epa.gov>

**Cc:** Ryan, Jeff <Ryan.Jeff@epa.gov>; Offenberg, John <Offenberg.John@epa.gov>; Linak, Bill <Linak.Bill@epa.gov>; Lee, Chun-Wai <Lee.Chun-Wai@epa.gov>; Bogle, Stephanie <bogle.stephanie@epa.gov>; Banks, Julius <Banks.Julius@epa.gov>

**Subject:** RE: Follow-up on PFAS GHGRP Meeting

Thank you, Nick! Thanks also for the illuminating presentation this morning.

FYI, I have received the go-ahead from my branch chief to serve on the team taking a closer look at our operating definition of "PFAS."

I am attaching the review of your workbooks that I shared with the group this morning. I focused on three datasets: emissions from fluorinated gas production and transformation processes reported under subpart L, emissions from semiconductor etching and chamber cleaning processes reported under subpart I, and emissions of heat transfer fluids reported under subpart I. On each tab, I have highlighted the saturated HFCs and PFCs in yellow. The saturated HFCs and PFCs are the compounds that underwent toxicological (and other) review through OAR/OAP/SPD's SNAP program and were generally not found to be concerning. The PFCs in particular are not reactive, but persist in the atmosphere for thousands of years. (This is what makes them some of the most potent GHGs known.)

I have also added notes for the heat transfer fluids that are composed of perfluoro polymethyl isopropyl ethers (PFPMIEs) and manufactured by Solvay. As I mentioned this morning, these PFPMIEs are all technically different compounds because they have different chain lengths and molecular weights, but they are all constructed of the same building blocks. Because they are technically different compounds, we have assigned them unique CASRNs by adding "(a)," "(b)," etc. notations after the CAS number used by Solvay, but if you look at the starting CASRN, it is identified as a PFAS by OECD (and I believe by Comp Tox as well).

Although I have boiled down the lists you sent us, you will see several almost identical repeats and synonyms in this list. I left these so everyone could see the variety of names used for these compounds.

Hope this is helpful,  
Debbie

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**From:** Spalt, Nicholas <[Spalt.Nicholas@epa.gov](mailto:Spalt.Nicholas@epa.gov)>

**Sent:** Thursday, June 24, 2021 12:39 PM

**To:** Barrette, Michael <[Barrette.Michael@epa.gov](mailto:Barrette.Michael@epa.gov)>; D'Ambro, Emma <[dambro.emma@epa.gov](mailto:dambro.emma@epa.gov)>; Lewis, Candace <[Lewis.Candace@epa.gov](mailto:Lewis.Candace@epa.gov)>; Lindstrom, Andrew <[Lindstrom.Andrew@epa.gov](mailto:Lindstrom.Andrew@epa.gov)>; Merrill, Raymond <[Merrill.Raymond@epa.gov](mailto:Merrill.Raymond@epa.gov)>; Miller, Melinda <[miller.melinda@epa.gov](mailto:miller.melinda@epa.gov)>; Murphy, Benjamin <[Murphy.Benjamin@epa.gov](mailto:Murphy.Benjamin@epa.gov)>; Ottinger, Deborah <[Ottinger.Deborah@epa.gov](mailto:Ottinger.Deborah@epa.gov)>; Sheppard, Margaret <[Sheppard.Margaret@epa.gov](mailto:Sheppard.Margaret@epa.gov)>; Williams, Antony <[Williams.Antony@epa.gov](mailto:Williams.Antony@epa.gov)>

**Cc:** Ryan, Jeff <[Ryan.Jeff@epa.gov](mailto:Ryan.Jeff@epa.gov)>; Offenber, John <[Offenber.John@epa.gov](mailto:Offenber.John@epa.gov)>; Linak, Bill <[Linak.Bill@epa.gov](mailto:Linak.Bill@epa.gov)>; Lee, Chun-Wai <[Lee.Chun-Wai@epa.gov](mailto:Lee.Chun-Wai@epa.gov)>

**Subject:** Follow-up on PFAS GHGRP Meeting

Hi all,

Thanks to those of you who joined the meeting to discuss fluorinated emissions data in the Greenhouse Gas Reporting Program today. Special thanks to Debbie and Melinda for meeting with us on multiple occasions. We certainly made some headway in looking at ways to include GHGRP data in PFAS Analytic Tools – A dashboard integrating various datasets that contain PFAS data. On a broader spectrum, we discussed ways to flag or filter compounds in the COMPTox PFASMASTER List (e.g. flagging common refrigerants). In this way, we could address data steward concerns of what is being presented as PFAS. Those cc'd were recommended as potential interested participants. Those who expressed interest in that on the call include:

Tony Williams  
Mike Barrette

Ben Murphy  
Emma D'Ambro  
Ray Merrill (Keep me in the loop)  
Debbie Ottinger (Checking with Supervisor)  
Margaret Shappard (Checking with Supervisor)

I've attached the PowerPoint presentation shared today, with some slides that we didn't get to. Those mostly pertain to data transfer and data quality. Happy to hear any feedback. Also attached are the files from the meeting invite that show 5-56% emissions of PFAS data in GHGRP (Range depending on your definition of PFAS, The Subpart, and Category).

We will look to follow-up with those interested and I can send out a next steps e-mail in the near future. I will also see you all on the follow-up ORD call.

Thanks again!  
Nick

Nicholas Spalt  
U.S. EPA Office of Enforcement and Compliance Assurance (OECA)  
Office of Compliance (OC) Enforcement Targeting and Data Division (ETDD)  
Integration, Targeting and Access Branch (ITAB)

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